**Trigonometry**

Contents

[1. Introduction - General Angles 2](#_Toc81675218)

[2. General Angles – Special Angles 2](#_Toc81675219)

[3. General Angles – Ratios of Any angle (signs) 3](#_Toc81675220)

[4. Exercise - General Angles 4](#_Toc81675221)

[5. Equations and Identities 5](#_Toc81675222)

[a. Exercise – One Trigonometric Ratios 5](#_Toc81675223)

[b. Exercise – 1 Trigonometric Ratios + Rewriting to tan x 6](#_Toc81675224)

[c. Exercise – Compound Angle + 1 Revolution 6](#_Toc81675225)

[d. Exercise – Compound Angle + Modify Number of Revolution 6](#_Toc81675226)

[e. Exercise – 2 Trigonometric Ratios 7](#_Toc81675227)

[6. Identities 7](#_Toc81675228)

[a. Exercise – 2 Trigonometric Ratios + Identities 8](#_Toc81675229)

[7. Graphs of Trigonometric Functions 8](#_Toc81675230)

[8. Additions Formulae 9](#_Toc81675231)

[a. Exercise – Additions Formulae – Trigonometric Ratios 9](#_Toc81675232)

[b. Exercise – Additions Formulae – Solving Trigonometric Equations 10](#_Toc81675233)

[c. Exercise – Additions Formulae – Proving Trigonometric Identities 10](#_Toc81675234)

[9. Double Angle Formulae 11](#_Toc81675235)

[a. Exercise – Double Angle Formulae – Trigonometric Ratios 12](#_Toc81675236)

[b. Exercise – Double Angle Formulae – Solving Trigonometric Equations 12](#_Toc81675237)

[c. Exercise – Double Angle Formulae – Proving Trigonometric Identities 13](#_Toc81675238)

[10. R Formulae 14](#_Toc81675239)

[a. Exercise – R Formulae – Trigonometric Ratios 14](#_Toc81675240)

[b. Exercise – R Formulae – Solving Trigonometric Equations 14](#_Toc81675241)

[c. Exercise – R Formulae – Max and min value of R Formulae 15](#_Toc81675242)

[11. Factor Formulae 15](#_Toc81675243)

[a. Exercise – Factor Formulae – Trigonometric Ratios 15](#_Toc81675244)

[b. Exercise – Factor Formulae – Solving Trigonometric Equations 15](#_Toc81675245)

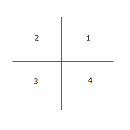
[c. Exercise – Factor Formulae – Proving Trigonometric Identities 16](#_Toc81675246)

[12. Sine Rule 16](#_Toc81675247)

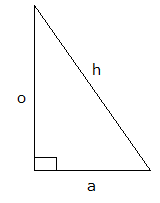
[13. Cosine Rule 16](#_Toc81675248)

[14. Area of Triangle 16](#_Toc81675249)

## Introduction - General Angles



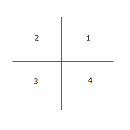
|  |  |
| --- | --- |
| 2nd Quadrant: Obtuse Angle | 1st Quadrant Acute Angle |
| 3rd Quadrant: Reflex Angle | 4th Quadrant Reflex Angle |



## General Angles – Special Angles

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## General Angles – Ratios of Any angle (signs)



|  |  |
| --- | --- |
| 2nd Quadrant | 1st Quadrant |
| 3rd Quadrant | 4th Quadrant |

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |

## Exercise - General Angles

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |

## Equations and Identities

### Exercise – One Trigonometric Ratios

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

### Exercise – 1 Trigonometric Ratios + Rewriting to tan x

|  |  |
| --- | --- |
| 1 |  |

### Exercise – Compound Angle + 1 Revolution

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

### Exercise – Compound Angle + Modify Number of Revolution

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

### Exercise – 2 Trigonometric Ratios

|  |  |  |
| --- | --- | --- |
| 1 |  | |
|  |  |
| 2 |  | |
|  |  |

## Identities

|  |  |
| --- | --- |
|  | Prove: |
|  | Prove: |
|  | Prove: |

### Exercise – 2 Trigonometric Ratios + Identities

|  |  |  |
| --- | --- | --- |
| 1 |  | |
|  |  |

## Graphs of Trigonometric Functions

|  |
| --- |
|  |
|  |
|  |

|  |
| --- |
|  |

## Additions Formulae

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

### Exercise – Additions Formulae – Trigonometric Ratios

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |

### Exercise – Additions Formulae – Solving Trigonometric Equations

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

### Exercise – Additions Formulae – Proving Trigonometric Identities

|  |  |
| --- | --- |
| 1 |  |

|  |  |
| --- | --- |
| 2 |  |

## Double Angle Formulae

|  |  |
| --- | --- |
|  | Prove: |
|  | Prove: |
|  | Prove: |

### Exercise – Double Angle Formulae – Trigonometric Ratios

|  |  |
| --- | --- |
| 1 |  |

### Exercise – Double Angle Formulae – Solving Trigonometric Equations

|  |  |  |
| --- | --- | --- |
| 1 |  | |
|  |  |
| 2 |  | |
| 3 |  | |
|  |  |

|  |  |
| --- | --- |
| 4 |  |

### Exercise – Double Angle Formulae – Proving Trigonometric Identities

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

## R Formulae

|  |
| --- |
|  |

### Exercise – R Formulae – Trigonometric Ratios

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |

### Exercise – R Formulae – Solving Trigonometric Equations

|  |  |
| --- | --- |
| 1 |  |

### Exercise – R Formulae – Max and min value of R Formulae

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

## Factor Formulae

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |

### Exercise – Factor Formulae – Trigonometric Ratios

|  |  |
| --- | --- |
| 1 |  |

### Exercise – Factor Formulae – Solving Trigonometric Equations

|  |  |
| --- | --- |
| 1 |  |

### Exercise – Factor Formulae – Proving Trigonometric Identities

|  |  |
| --- | --- |
| 1 |  |

## Sine Rule

## Cosine Rule

## Area of Triangle